Washington Park Arboretum

BULLETIN

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Washington Park Arboretum

The Arboretum is a 230-acre living museum displaying internationally renowned collections of oaks, conifers, camellias, Japanese maples, hollies and a profusion of woody plants from the Pacific Northwest and around the world. Aesthetic enjoyment gracefully coexists with science in this spectacular urban green space on the shores of Lake Washington. Visitors come to learn, explore, relax or reflect in Seattle's largest public garden.

The Washington Park Arboretum is managed cooperatively by the University of Washington and Seattle Parks and Recreation; the Arboretum Foundation is its major support organization.

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Open 10 AM—4 PM daily;
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ABOVE: This coveted selection of the Japanese painted fern, *Athyrium niponicum* var. *pictum* 'Ursula's Red,' has particularly showy red veins highlighting its silver gray fronds. This and other ferns pictured in this issue are featured in the Arboretum's Signature Bed at the Graham Visitors Center. For further information, see the article on page 20. (Photo by Richie Steffen.)

ON THE COVER: The curious, unfurling, fertile (spore-producing) fronds of *Blechnum spicant*, deer fern, stretch toward early spring sunshine. Native to the coniferous forests of both Europe and northwestern North America, this elegant fern is easily cultivated in damp to wet soil in either sun or shade. *Blechnum spicant* was named a Great Plant Pick for 2004. (For further information, consult www.greatplantpicks.org.) (Photo by Richie Steffen.)

High Interest

Interest in the Arboretum is currently very high. Saplings just welcomed its 2,000th student for the spring session—a record number. More people are taking guided tours, and more are visiting the Arboretum on their own. The photo contest, co-sponsored by the Bulletin, encouraged over 100 entrants. Grand prize photos will be published in the Bulletin's fall issue.

An effort to increase public awareness of the Arboretum has resulted in articles or snippets in local and national publications and network broadcast calendars, as well as inquiries from the Oxford Companion to Gardens and the International Camellia Society. Our revamped Web site, www.arboretumfoundation.org, has been launched and has already brought in new members.

Plant sales are a highlight of the Arboretum Foundation's year. We had great success with spring sales. Early Bloomers more than doubled its income from last year, and the South Sound sale, organized and run by Unit 98, was also extremely successful. The "grandmother" of all plant sales, our own FlorAbundance spring sale, saw almost 500 people in line at 10:00 a. m. on opening day—the longest line I have seen in all my years of involvement. At this writing final plans for the Summer Solstice sale are underway and the bulb sale committee is busy planning for fall. As always, Foundation volunteers help make our sales, and other events, a huge success.

Work toward the Master Plan is progressing on multiple fronts. Designers have been hired for the Arboretum Interpretive and Way-finding plan and the South Entry-Madrona Terrace project. Plans for irrigation mainlines, the site survey, and the allocation of ProParks dollars designated for the Arboretum, are underway.

We continually hear from delighted people who have never before been to the Arboretum or who haven't visited for many years. Every day there is something new to see, from a rare blooming shrub to the majesty of grand trees or a hummingbird in a fuchsia. Please plan to visit the Arboretum this summer and create your own unique experience.

Deborah Andrews

Deborah Andrews, Executive Director,
Arboretum Foundation

RICHIE STEFFEN

An exciting introduction available in nurseries this fall, X *Sinocalycalycanthus raulstonii* 'Hartlage Wine' is an intergeneric hybrid of *Calycanthus floridus* and *Sinocalycanthus chinensis* developed by Northwest landscape designer Richard Hartlage while he was a student at North Carolina State University. Its specific epithet honors N.C. State's late professor J. C. Raulston. This new, summer-blooming shrub enjoys sun or partial shade and grows to be 6 to 8 feet tall. For more on summer-blooming shrubs, see page 16.

DAN HINKLEY

The Butterfly Bush Effect

By Patricia A. Townsend

Gardeners love butterfly bush (*Buddleia* or *Buddleja davidii*). The shrub produces fragrant, lilac-like flowers throughout the summer that provide a good nectar source for butterflies, bees and hummingbirds. The perennial shrub is also easy to grow, drought-tolerant and generally pest free. The commercial market has developed flowers in shades of white to deep purple with lilac the most common color in naturalized populations. The yellow-orange found inside the flower gives the multi-

This large specimen of *Buddleia davidii* was photographed in its native habitat, Yunnan province, China. Introduced to gardens in the 1890s, butterfly bush is now naturalized in climates as varied as those of England, Australia, Hawaii and, in the United States, Massachusetts, Missouri and Southern California.

stemmed shrub another common name: orange eye. Unfortunately, butterfly bush has joined the ranks of other popular ornamentals, such as purple loosestrife, scotch broom and English ivy, as a potentially dangerous invasive that should be removed from gardens.

"Unfortunately, butterfly bush has joined the ranks of other popular ornamentals, such as purple loosestrife, scotch broom and English ivy, as a potentially dangerous invasive that should be removed from gardens."

The shrub is native to central and south-western China where it grows along roadsides, riverbanks and in other disturbed areas. Wind or water and sometimes cars easily disperse the light and small winged seeds. If there is a nearby seed source, areas are typically colonized within a year or two of disturbance. The seeds have a deep dormancy and consequently may remain in the soil for many years. Seedlings are drought-tolerant and quickly develop an extensive root system. Plants reach reproductive maturity in less than one year and grow rapidly at a rate of 0.5 meters per year for 10 years before their rate of growth slows. These characteristics have enabled butterfly bush to become invasive in many parts of the world.

A French missionary and naturalist, Father Armand David, discovered the species in 1869. Butterfly bush was then introduced as an ornamental plant in the 1890s in both Europe and North America. By the mid-20th century butterfly bush had naturalized throughout southern England in disturbed areas—abandoned railway yards and urban areas destroyed by World War II bombs—to the point that it is currently listed among England's top 20 invasive weeds. A similar pattern is occurring in New Zealand. The species is also invasive in Australia, Fiji, Hawaii and parts of Europe. Within North America, naturalized butterfly bush has been documented in eastern states from Massachusetts to Georgia and westward to Kentucky, Tennessee, Missouri, Ohio and Michigan. On the West Coast it has been reported from Los Angeles to Vancouver, BC.

Butterfly bush is not currently listed as a noxious weed within the United States, but there is concern about it in some regions. The Pacific Northwest Exotic Pest Plant Council lists the plant as "A-2 most invasive-regional." Within Washington it has been observed in the majority of the counties surrounding Puget Sound and is common along parts of Interstate 5. In the Seattle area, a survey of garden centers found a range, depending on the center, of five to hundreds of plants sold per year, which contributes immensely to the spread of the species. With a notorious, invasive history, butterfly bush seems well positioned to invade similar areas throughout the United States, though its full invasive potential is not yet known.

Worldwide there are about 100 species of *Buddleia*. Other species of *Buddleia* may also be invasive, including fountain butterfly bush (*B. alternifolia*), which has naturalized in parts of Oregon. In Hawaii both *B. asiatica* and *B. madagascariensis* have naturalized. There is particular concern for *B. madagascariensis* in other regions because it produces bird-dispersed seeds that could potentially be spread long distances.

Butterfly bush is more of a foe than friend to butterflies. Though the shrub produces nectar, butterflies will not lay eggs on the leaves because they offer no nutrition for hatchling caterpillars. The problem is compounded by the fact that butterfly bush rapidly colonizes riversides and disturbed areas, forming dense, shrubby thickets. The resulting monocultures, along Salmon Creek and Lake Oswego in Oregon, have displaced native willows, an essential food resource for native butterfly caterpillars.

Since butterfly bush is likely to spread further and become costlier to control in the future, gardeners should remove the species. Shrubs that are merely cut will vigorously re-sprout and may grow as much as 2 meters in the following year; ultimately, plants must be dug out by the roots and the stumps treated with a herbicide, such as glyphosate. Young plants may be hand-weeded, but care must be taken because soil disturbance encourages seed germination. Planting a rapid-growing groundcover of a non-invasive plant can prevent re-establishment.

So what to do if you can't part with a butterfly bush in your garden? Recent research at Longwood Gardens, Inc. by Anisko and Im (2001) found several taxa that produce sparse seed including *Buddleia globosa, B. fallowiana, B. hemsleyana, B. macrostachya* and *B. nivea*. This is in stark contrast to some cultivars of *B. davidii*, which can produce a whopping 3,000,000 seeds per average plant. In addition, Dr. Jon Lindstrom at the University of Arkansas is working on producing sterile hybrids of *Buddleia* and hybrids that produce large seeds that do not disperse easily. The hope is that these hybrids will offer the beauty of butterfly bush without the threat of invasiveness. While waiting for these new species and hybrids to become commercially available, your best bet is to plant Northwest natives attractive to butterflies, including mock orange (*Philadelphus lewisii*), wild lilac (*Ceanothus* spp.), violet (*Viola adunca*), ocean spray (*Holodiscus discolor*) and pearly everlasting (*Anaphalis margaritacea*). ~

Patricia Townsend has a master's degree in zoology from the University of Florida and is currently a doctoral candidate at the University of Washington where she studies plant-animal interactions and how they contribute to tropical forest restoration in Costa Rica. Her interests include conservation biology education and gardening with native plants.

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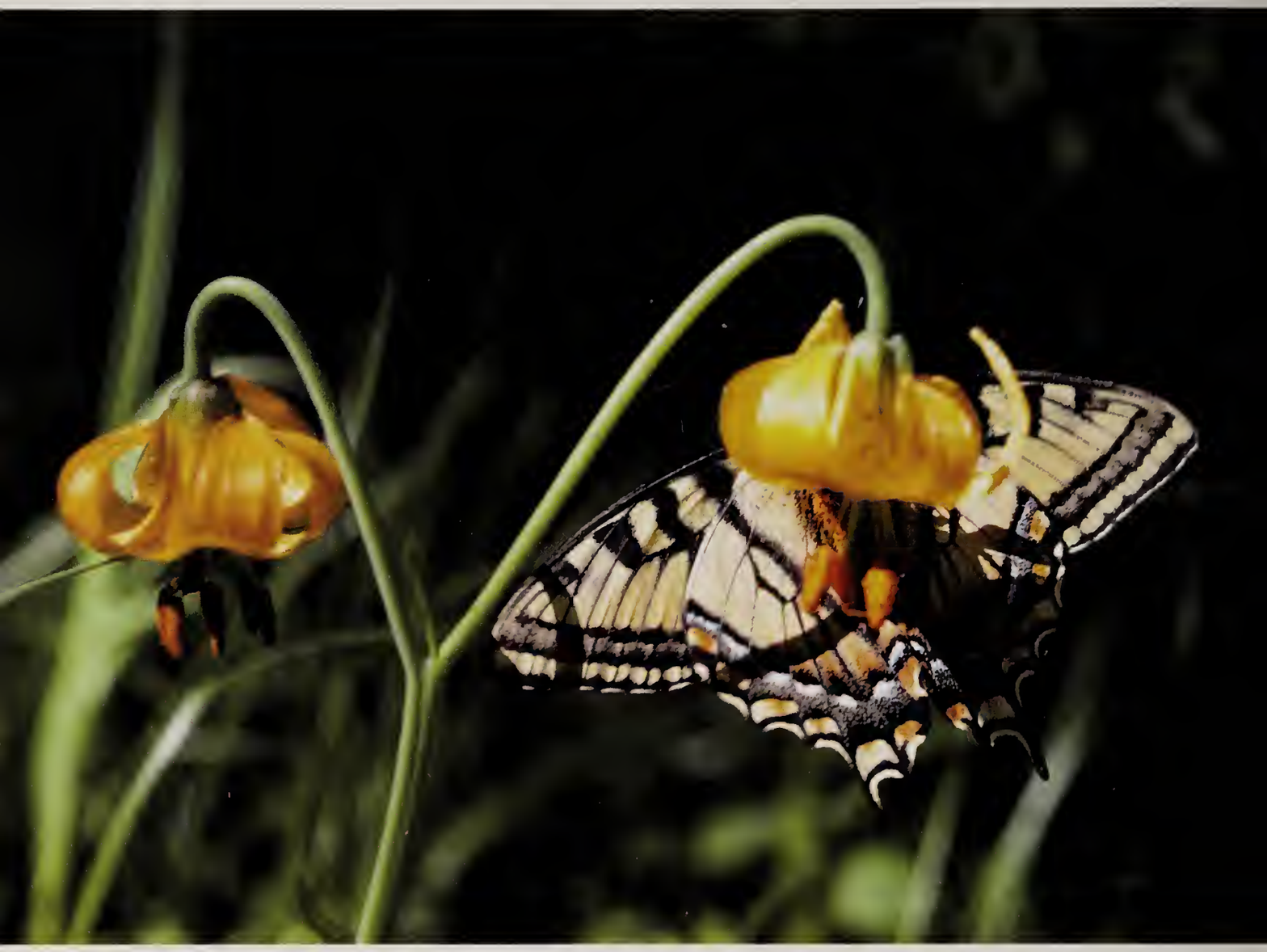


Gardening for Butterflies

By Sarah Moore

Photos by Joy Spurr

At Pacific Science Center's Tropical Butterfly House, many visitors ask how to attract local butterflies to their gardens. The short answer is to plant masses of colorful flowers, learn the host plants of common native butterflies, and avoid all unnecessary pesticide use. Basic gardening decisions can help attract, keep, and protect butterflies.

The link between butterflies and plants is powerful and complex. Most gardeners focus on planting for adult butterflies. This kind of gardening is easy and rewarding, because butterflies and people have similar preferences. Both are attracted to brightly colored flowers, sweet floral fragrances, and season-long bloom sequence. If you provide those things, you will probably see your share

The largest and most striking-looking butterfly found in Western Washington, the western swallowtail (*Papilio rutulus*) feeds here on tiger lilies (*Lilium columbianum*).

of butterflies. Understanding a little more about how butterflies sense the world can make a difference in how many and what kinds you attract, and can enhance your appreciation of these winged visitors.

Massed Bloom

Butterflies have excellent color vision; in fact, they can see into the ultraviolet end of the spectrum, so that some flowers appear much more brightly colored to them than to us. However, a single blossom, however colorful, may be overlooked, as butterflies' distance vision is not acute. Mass plantings of a single cultivar, or plants that cover themselves with flowers, are good bets. Many salvias, daisies, asters, phlox, sedum, yarrow, and flowering herbs and hedge plants provide the massed, colorful bloom butterflies need to find nectar.

Be sensitive to the length of butterflies' proboscises, the straw-like mouthparts used to sip food. Many flowers we grow for hummingbirds have corollas too long for butterflies to feed from, and some members of the pea family are more suited to bees than butterflies. Double flowers may look lovely to us, but their multiple petals make it difficult for butterflies to reach the nectar inside.

Butterflies have a very rapid life cycle, with several generations born between spring and autumn. The challenge is to keep a succession of bloom all season so that multiple generations are enticed to stay in the garden. Consider letting a few weeds blossom for early nectar, and let your herb garden go to flower in the fall to stretch out the season at the other end. Hellebores, asters and sedums are other good season-stretchers, especially in unusually mild years when butterflies may appear earlier or remain later than usual.

Lastly, butterflies thrive in sunny weather. We can't change the weather in the Northwest, but we can garden to make the most of whatever sun we get; and we can provide microhabitats to protect butterflies' delicate wings from rain. Plant your most welcoming flowers on the south side of your house, and provide a few plants with large leaves or arching branches as hiding places from rough weather.

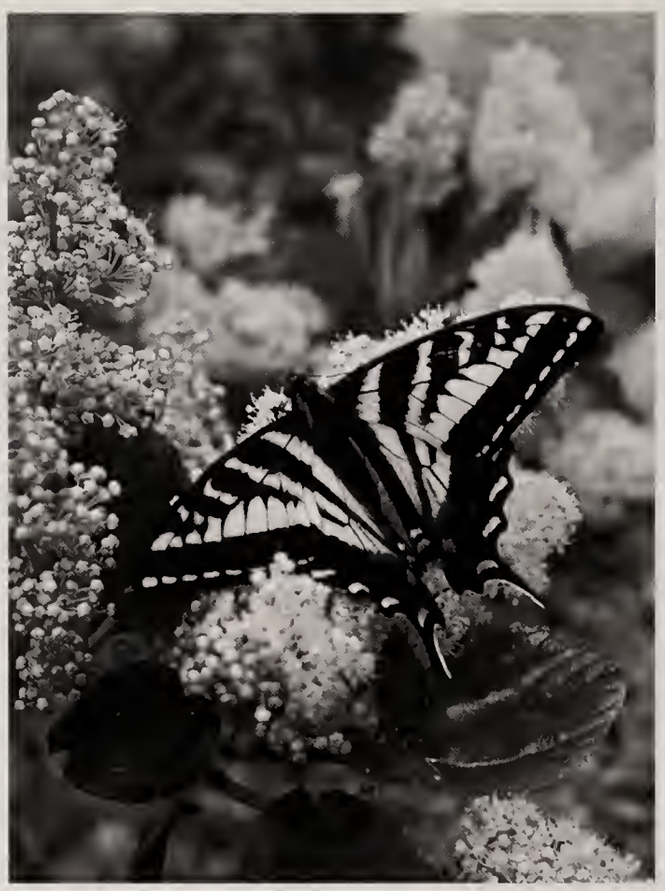
Hosts for Caterpillars

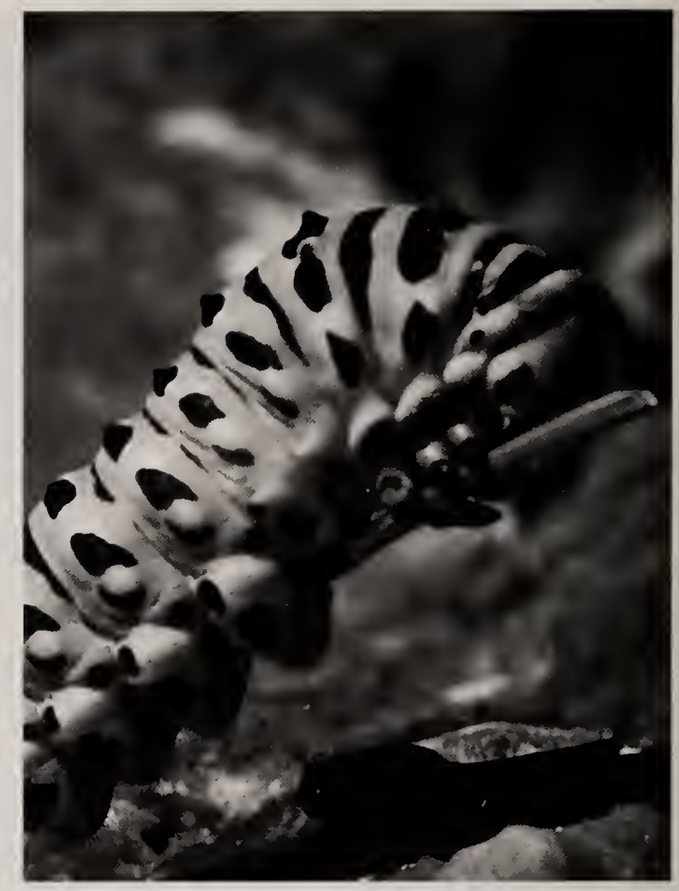
Next, think about your tolerance of caterpillars. We all know they are the other part of butterflies' life cycle, but perhaps we hope that someone else's garden will provide for them. Keep in mind that butterflies have short lives and must work hard to eat, find mates, and lay their eggs during their brief time on Earth. Help them out by choosing some plants that can feed caterpillars and leaving those plants untreated and unpruned during the summer.

Butterflies do not raise their young, but they are still careful parents. Before she lays her eggs, the female butterfly carefully inspects local plants. She uses special sensors in her antennae and feet to identify the small group of plant species on which her offspring will thrive. She does not lay eggs until she finds the correct host plant, and if you don't have it, she will not remain in the garden for long.

Willow, elm, wild cherry, Queen Anne's lace, cabbage family plants, nettles, bleeding heart, clover, alfalfa, plantain, snapdragon, thistle, aster, violet and mallow may all be hosts to native species in your area. Learn to identify local butterflies and their host plants, and allow some of those plants to thrive.

Different butterfly species prefer different locations to enter into chrysalis form and undergo metamorphosis. Often a chrysalis is beautifully camouflaged in its surroundings and is all too easily thrown out during garden cleanup or damaged by digging. Chrysalises, as well as many other wild things, enjoy a little less tidiness than most gardeners prefer. Try to find a happy compromise that produces





ABOVE LEFT: A pale swallowtail butterfly (*Paplio eurymedon*) perches on the blossoms of *Cenothus velutinus.*

ABOVE RIGHT: An anise swallowtail larva (*Papilio zelicaon*) feeds primarily on dill, fennel and caraway foliage.

an attractive garden yet allows birds to feed on seedheads and chrysalises to mature in hiding among the fallen leaves, plant stems, and mulch.

An Interdependent World

Last, but perhaps most important of all, a garden can be a perfect oasis for butterflies, but they may need help getting there. If others in the neighborhood make heavy use of insecticides, or if you live in an area with very fragmented habitat, it may be difficult for butterflies to travel from one safe, attractive garden to another. Become active in your neighborhood. Offer to care for a small butterfly garden in a traffic island. Speak to people or businesses that use pesticides if you fear they are harming native butterflies. Encourage seed- and plant-sharing with other local gardeners, and help keep invasive plants out of wild areas, where they may outcompete the native plants butterflies need to lay their eggs.

Like so many worthwhile endeavors, gardening for butterflies is a beginning, not an end, to discovering the complexity and interdependence of the world we live in. What begins as a simple question of garden design can become both an opportunity to learn about how another species interacts with the environment and a challenge to protect the world in which we, and butterflies, live. ~

Sarah Moore is Life Sciences Manager at the Pacific Science Center where she was part of the design and start-up of the butterfly house. With a bachelor's degree from Bates College in Maine and life-long interest in insects, Moore describes herself as "a perfect role model for butterfly gardeners" who believe that every "stray weed is really a host plant or a nectar plant."

SALVIAS FOR NORTHWEST GARDENS

By George Rojas

Photos by Marta Rojas

With over 900 species from every part of the world, the genus *Salvia* is one of the largest. It is certainly the biggest in the mint family. Add to this array numerous cultivars, and you have a huge selection of plants. Salvia flowers come in an amazing array of colors, and their foliage is often highly aromatic. Salvias can be found on rocky slopes in Turkey, in the jungles of Mexico, along coastal dunes in South Africa, streamsides in China, hills above Los Angeles and even creeping along the floor of Peruvian forests.

With such geographical diversity it is obvious that not all will survive our cold, wet, northwest winters. But some are quite hardy in our region. Others will stick around for only three or four years. Others are just too tender,

ABOVE LEFT: A North African native, *Salvia barrelieri* produces 5-foot stems of large, light lavender blossoms.

ABOVE RIGHT: With regular deadheading, *Salvia transylvanica*, from Romania, will bloom until frost.

or flower during the winter, and need to be placed in a cool greenhouse. And others just perform as annuals.

Since I began growing salvias I have made annual trips to California nurseries (and eventually to the Mecca of salvia plant sales at Cabrillo College in Aptos) to look for plants I had only read about. Over time, I have discovered that some half-hardy species and cultivars are able to survive our Northwest winters. Many salvias that are shrubs in California will act as perennials here, dying down during winter to return in spring. With proper planting, site-selection and watering, some favorite hardy and half-hardy salvias will survive. Since microclimates exist throughout the Puget Sound region, planting these half-hardy salvias is the only way to find out if they will be hardy for you.

The nectar of *Salvia* 'Indigo Spires' is attractive to both hummingbirds and butterflies.

To Grow Salvias Well

Nothing will kill salvias faster than poorly drained soil. Amending the soil with generous amounts of compost will greatly increase their chance of survival. The addition of a good organic fertilizer at planting is also recommended. Elevating planting areas will increase survival even more. Where no acceptable planting area exists, containers offer another option. Salvias grow well in large pots, baskets or window boxes. Most salvias start blooming in late summer, and one benefit of container-growing is an earlier start on their blooming season. Another is the flexibility of moving tender plants into a garage, coldframe or cool greenhouse for overwintering.

Full sun helps salvias bloom their best, look their best and have the strength to deal with wet Northwest winters. Many come from areas where summers are hotter, longer and brighter than ours. Placement near a south-facing wall, near concrete or among rocks will help. Some hardy salvias will tolerate a shady situation, but they are few.

During their first season, salvias need to be watered regularly. This will help roots penetrate deeply into the soil, making plants more drought-tolerant in summer and roots less likely to freeze in winter. Drip irrigation, turned on every couple of weeks for a few hours in summer, is ideal. Salvias that require less water should to be grouped together or containerized. For this reason, all of my California salvias—native to dry chaparral areas—are grown in pots in a cactus soil. They can usually take the winter cold here but must have minimal water throughout the year.

Some thought should also be given to site selection. Many new world salvias, especially tall ones, have brittle stems and are susceptible to wind damage. With a good gust, towards the end of the season, they will snap right off at the base. Find a sheltered location for these plants. If possible, use tomato cages or bamboo stakes to support the plants early in the season.

Salvias, especially the half-hardy varieties, should only be planted in spring in the Northwest. This will give them a full season to establish themselves before facing their first winter. A 3-inch layer of bark, gravel or compost applied in the fall will help protect roots from freezing weather.

Be aware that salvias break dormancy late. Soil in the Northwest warms up slowly, so be patient before giving up on their survival. Some years I don't see signs of life from some plants until very late spring. But once they start growing, they will grow quickly.

So which salvias should you try in your garden? Here are a just a few suggestions to get started:

• ***Salvia argentea:*** This short-lived hardy salvia is grown for its foliage. It forms a 2-foot rosette of large gray, wonderfully woolly leaves. Clip the flower stalk in summer to maintain the look, and watch out for slugs.

• ***Salvia barrelieri:*** Gracing the cover of Betsy Clebsch's "The New Book of Salvias," this North African native is quite striking. In summer it sends up 5-foot stems of large, light lavender flowers. Interestingly, its basal gray green foliage generally stays up all winter. Three to four years seems to be its life span here.

• ***Salvia canariensis:*** This salvia is grown for both its foliage and flowers. It is a 7-foot shrub in the Canary Islands. Here it grows to 3 feet, dies down during winter and pops up the following spring. It has large, arrowhead-shaped leaves covered with long white hairs and purplish-mauve flowers in late summer. Quite attractive!

• ***Salvia chamaedryoides:*** Many of the most colorful salvias come from Mexico, as does this little gem. It forms a 1-foot evergreen mound of small, gray, rugose leaves. Small, deep blue flowers appear sporadically summer through fall. I use this salvia in a window box as well as in a rockery mulched with gravel.

• ***Salvia darcyi:*** Discovered in Mexico in 1991, this salvia is proving to be hardy in the Northwest. Whorls of coral-red flowers are produced in summer on a 3-foot plant. Deltoid leaves are sticky and hairy. It dies down completely in winter.

• ***Salvia forsskaolii:*** This native of south-eastern Europe is a hardy perennial here. It forms a 2-foot basal clump of leaves. The flowers in summer can be violet-blue to pinkish-mauve with splashes of white on the lips. It is notorious for reseeding but a little deadheading will generally fix that.

• ***Salvia guaranitica:*** Most of the salvias from South America won't live through our winter, but this one does. It has an upright habit to 4-to-5 feet and is a prolific bloomer with brilliant blue flowers summer through fall. Several of its cultivars are also nice, varying in size and shade of blue.

• ***Salvia 'Indigo* Spires':** This garden hybrid was discovered in the 1970s in California, where it is well known. It is a 4-foot plant producing 1-foot twisting spikes of violet blue flowers all summer long. Pinching early will reward you with an abundance of color later on.

• ***Salvia involucrata:*** This is probably the oldest salvia in my garden. Of Mexican origin, it has arching 4- to-5-foot stems topped with spikes of rich vivid pink flowers summer through fall. Hummingbirds always seem to be around this plant when it is blooming.

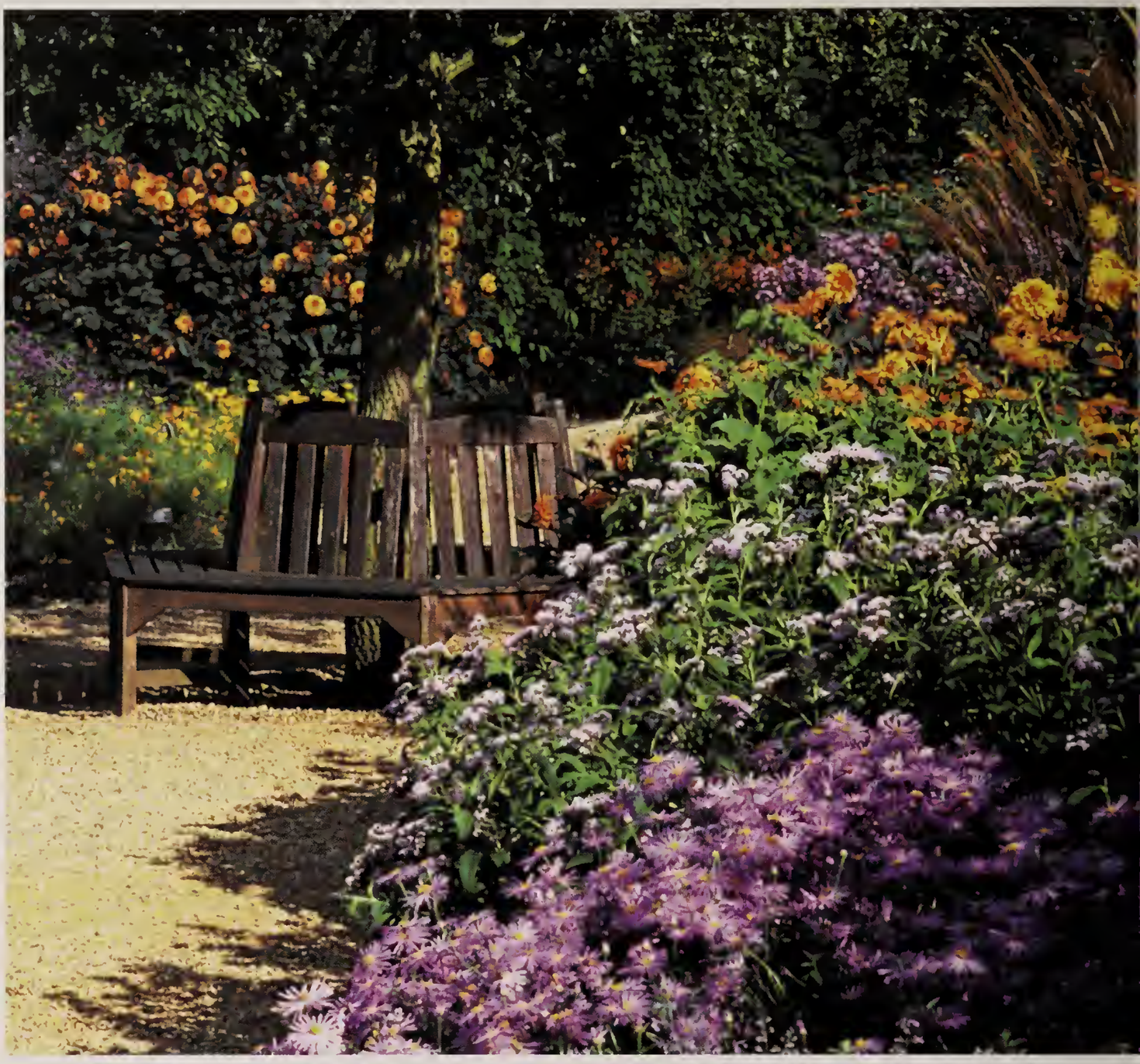
• ***Salvia microphylla*** 'Wild Watermelon': There are numerous *S. microphylla* selections. This selection is impressive for its large pink flowers and its hardiness. It is a 3-foot mound of color from summer on.

• ***Salvia transsylvanica:*** From Romania and quite hardy, this salvia forms a 2-foot basal mound of large scalloped-edged leaves. Spikes of rich violet flowers make a colorful showing all summer. Deadheading will encourage flowering till frost.

• ***Salvia uliginosa:*** This hardy salvia from South America will actually tolerate a wet situation. But it will also spread rapidly there. A graceful plant, it grows to 4 feet with wands of sky blue summer through fall. Infrequent watering or a dry spot will keep it manageable.

There are many wonderful salvias to choose from. All will give the garden loads of color, from late summer through fall. When the blooming madness of spring is just a memory, and the perennial colors of summer are slipping away, that is when salvias shine. ~

George Rojas owns SmartyPlants nursery, which specializes in salvias. Plants are available at local spring plant sales. He may be reached at martageorge@yahoo.com or by calling 425-771-1362. For further information about the genus *Salvia*, Rojas recommends "The New Book of Salvias" by Betsy Clebsch.

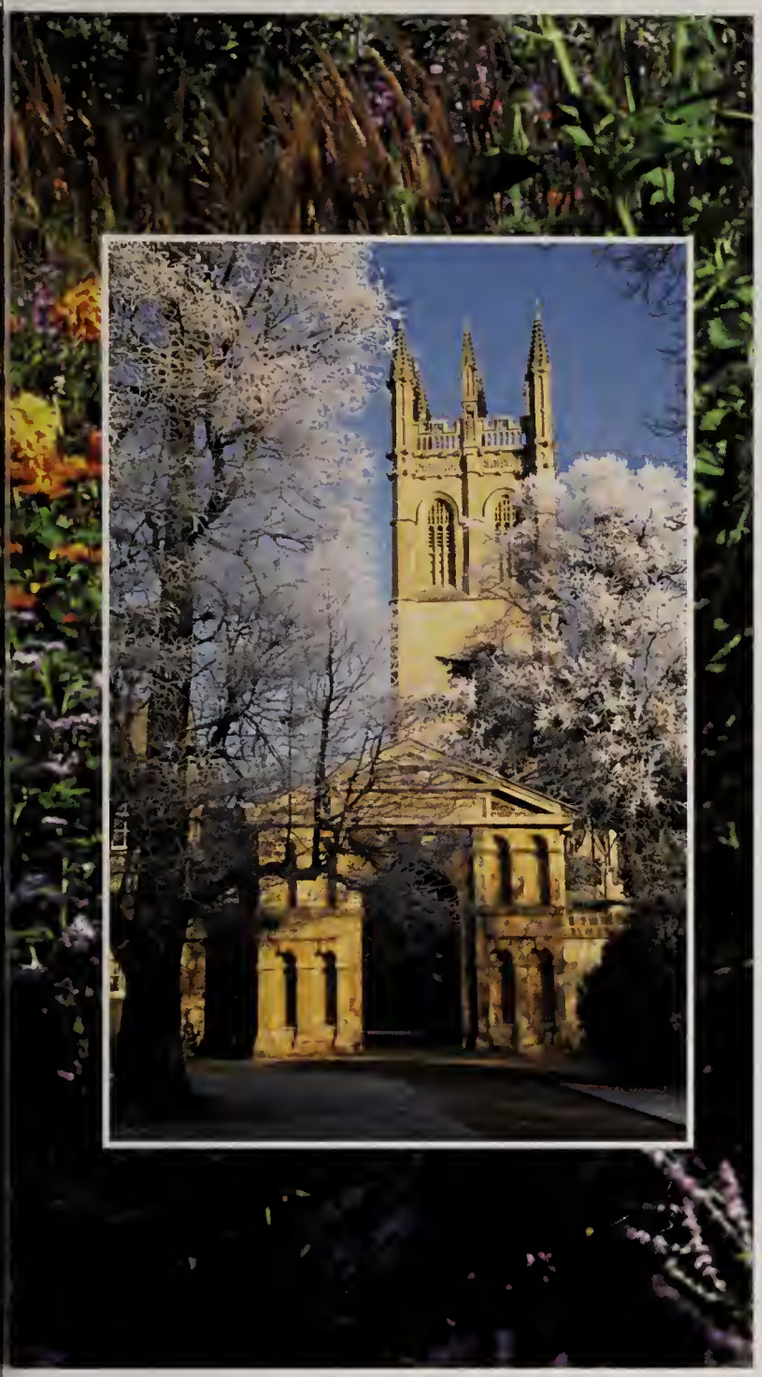


THE OLDEST BOTANIC GARDEN IN BRITAIN

The University of Oxford Botanic Garden

TEXT AND PHOTOS BY TIMOTHY WALKER

The University of Oxford Botanic Garden was founded in 1621 just as the founding fathers were landing on the East Coast of North America. The Garden has been cultivated continuously for more than three centuries. Sir Henry Danvers' initial benefaction of £5,000 equates to about U.S. $5 million today: setting up botanic gardens has never been cheap! Sir Henry came from what was described in the 17th century as a "colourful" family—a euphemism for hot-headed or just downright murderous. Sir Henry



BACKGROUND: Sunlight spills over asters and dahlias crowding the autumn border in the lower part of the University of Oxford Botanic Garden.

INSET: A frosty view of one of the garden's entry arches, completed in 1633, with Magdalen College Tower in the background.

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and his elder brother murdered a neighbour because the fellow murdered one of the Danvers' servants. The Danvers boys saw no need to bother the local magistrate with such an open-and-shut case and so as the neighbour emerged from church one Sunday, they did him in. They then had doubts the law would support them and therefore took the only option open to two young aristocrats—they ran away to Europe, leaving their mother to sort out the mess. While travelling around Europe they visited various cities with universities almost as old as Oxford. Some of these establishments already had physic gardens for the cultivation of medicinal plants, and it is believed that these gardens sowed the seed of benefaction in the mind of the young Sir Henry.

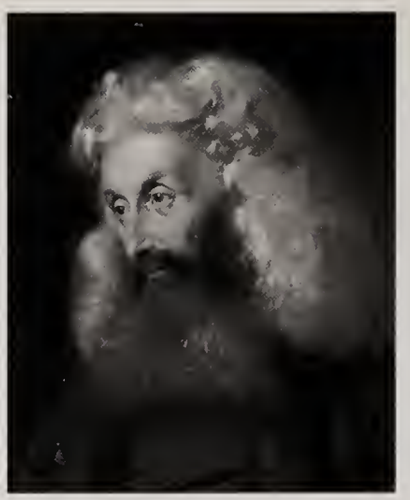
When the boys returned to England, Sir Charles fell in with a rough bunch and was executed for treason. The youngest brother, Sir John, was later to sign the death warrant of Charles I, but our Sir Henry remained on the straight and narrow and eventually became a Knight of the Garter. It is in these robes that he was painted by Van Dyck—the portrait now hanging in the Hermitage in St. Petersburg. In 1621 Sir Henry, who by then had been created the First Earl of Danby, gave the University £5,000 to create a physic garden with a very simple mission: *to promote learning and glorify the works of God.*

A Suitable Place

The first challenge was to find somewhere to put the Garden. It was decided that a field on the bank of the River Cherwell just outside the east gate into the walled city of Oxford would be suitable. The tenant farmer was bought out, and the University entered into a lease with Magdalen College, which still serves as landlord. It was a good place for a garden because until 1293 it had been the site of the Jewish cemetery for Oxford. Cemeteries are good places for the long-term cultivation of plants.

However, the first winter revealed that it might not have been such a good choice when the plot was flooded to a depth of six feet. The University's scavenger was called in. The University does not now have an official scavenger, though if it did, the post would

probably be known as the recycling officer, since the scavenger brought what he described euphemistically on the invoice as "4,000 carte loades of mucke and dunge." Four thousand truckloads of human effluent would have been a more accurate description, but people were not so squeamish in the 17th century. This early history of the land is highly significant because it means that we have soil to-die-for; 33 feet of rich alluvial loam enriched with a great deal of organic matter. The pH of the soil is 8.1, but some regard this as a blessing, for we feel under no obligation to grow camellias, rhododendrons and all those other for-one-week-only, never-to-be-repeated, blowsy show-offs, leaving more room for aristocrats, such as euphorbias.



Jacob Bobart, the Garden's first *Horti Praefectus*, amazingly managed to establish Oxford Botanic Garden in the midst of civil war.

Having sorted out the soil, the next chapter involved the construction of a 9-foot deep and 14-foot high stone wall around the 2.4 acre site, with entrance archways on the north, east and west sides. The northern arch, respectfully known as the Danby Arch, was one of the first triumphal arches to be built in England in the 17th century, and although it is flawed in some ways, it is still an important part of architectural history. The walls and the archways were completed in 1633, but sadly, as with many building projects, the budget had been exceeded, and there was no money left to plant the Garden and even less to employ anyone to cultivate the plants that they could not afford to purchase. The Garden lay fallow until 1642.

Bless Jacob Bobart

1642 was an "exciting" time in England, since the Civil War erupted in this year and Oxford and its university were intimately involved in the hostilities: they came second. Against this background of civil unrest and general hullabaloo, one man stepped forward to realise Sir Henry's vision for the Garden. This man was Jacob Bobart, who became the first of 16 men to be the Garden's mugwump or *Horti Praefectus*. Many people consider it the best job in the world, and on a good day it must be a strong contender for the title, though it does have a poor health record. Of my 15 predecessors, 12 have either died in post or been taken away to the Oxford home for the confused and bewildered. Jacob Bobart may have been a few perennials short of a full herbaceous border, but then only someone with a tenuous grip on reality would actually think about starting a botanic garden during a civil war.

Bobart was a wealthy man. He owned four public houses, always a sound investment in a university town, and he opened the first coffee shop in England just up the High Street from the Garden. He collected plants at a prodigious rate and in 1648 published a catalogue that listed in excess of 1,500 species. At this point, this task was crossed off the strategic plan, and we did not get 'round to publishing the second edition until 1999. It has to be admitted that in the intervening 351 years one or two plants had died, or rather one or two things had survived—or to be more accurate one tree had survived. An English yew tree at the south of the Walled Garden remains as a tangible link with the founding of the Garden.

The Oldest Plant in the Oldest Botanic Garden

It would be hard to think of a more appropriate species to be the oldest plant in the oldest botanic garden in Britain for two

reasons—one trivial and one profound. First, Taxus baccata is one of just 27 tree species native to Britain and Ireland. Second, and far more important, the leaves of this species are currently the only sustainable source of the raw ingredient for the synthesis of Taxotere®, a chemotherapy for breast cancer that has saved the lives of several close friends including one currently being treated with the drug in London. Therefore, the oldest plant in the oldest botanic garden in Britain is a medicinal plant. This is a surprise to some, because it is not appreciated just how important plant-derived treatments continue to be in conventional western medicine.

Of course when Jacob Bobart planted this and many other yew trees in the fledgling garden, he was unaware of their specific medicinal potential. He had no idea that 15 generations later the leaves from his plant would be saving lives. But it would not have surprised him, for the 17th century garden was used *to promote learning* in herbal medicine, and 17th century physicians used most of Bobart's plants. The majority of the plants growing in Robert Lovell's 1659 Herbal were growing in Bobart's Garden. 350 years later the Garden is still involved in the teaching of medical students at the University.

The medicinal potential for plant species is often cited as a reason for conserving the world's plants. We shall not be regarded as good ancestors if we sit back and indifferently watch the disappearance of the biology that we have inherited. The fact that all but six of the world's governments have committed themselves to the conservation of the world's biology is clear indication that most of the earth's residents care about the well-being of our children and grandchildren and their grandchildren. Many religions around the world see the stewardship of biology as a moral duty. Perhaps this was the *glorification of the works of God* that Sir Henry Danvers had in mind when he composed the Garden's mission statement.

Although the original educational activity of the Garden concerned medicine, it was not long before botany and plant sciences began to take centre stage. The Botany School was the first truly experimental scientific department in the University, and the landmark lecture on the sexuality of plants delivered by Nehemiah Grew (1641-1712) was based on observations made in the Garden. During the past 300 years the Garden has been the starting point of the careers of many notable botanists. For example, many of the directors of the Royal Botanic Gardens Kew, from Sir Joseph Banks to Professor Peter Crane, read botany at the University of Oxford.

Garden Evolution

Not all of the physic gardens founded in the 17th century have survived. It can be seen from the demise of other botanic gardens that they only survive if they remain relevant to the aims of the parent organisation. The withdrawal of the University's Botany and Zoology degree courses in the early 1990s and their replacement with a single Biological Sciences course could have been the death knell for the Garden. Some people regarded botany and botanic gardens as rooted in 19th century imperialism. However, interest in whole plant biology at Oxford and other universities is increasing. For example, this year, 21 percent of the final year undergraduates are specializing in plant biology. Is there a reason for this renaissance? Could it be because 91 percent of all biology takes place within plants and that animals are just products of plant life?

Furthermore there have been quantum changes in plant science in the past quarter of a century. Modern experimental techniques are currently revealing a great deal of information about plant evolution, though the origin of flowering plants remains as much an abominable mystery as it was in Charles

continues on page 33

Summer Blooms

By Christina Pfeiffer

When it comes to summer color in the Pacific Northwest, most gardens revolve around myriad annuals and perennials. Sometimes, plant choices for our region seem nearly endless—as work, too, can seem when tending these plants for optimal display. Beautiful as they are, gardens heavily laden with perennials can present a challenge for gardeners with limited time and energy to devote to their intensive requirements.

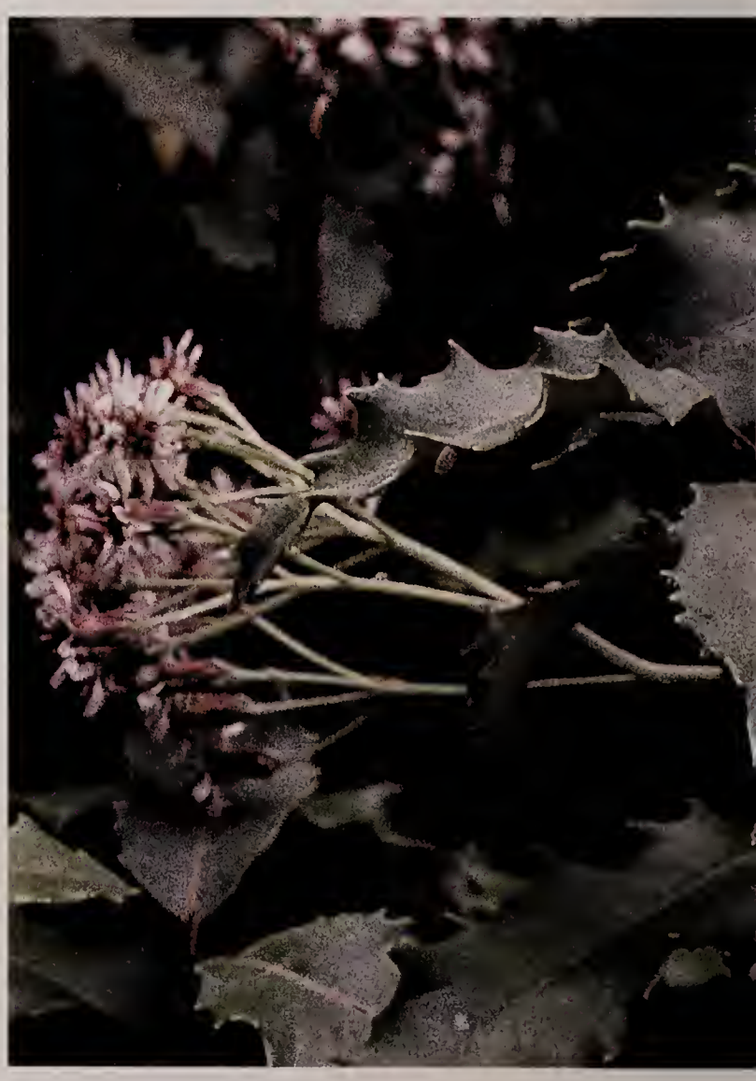
Woody plants, adored in spring bloom and again as leaves turn in fall, are often ignored in summer. The same was once true for winter, when it seemed there was little of interest in the garden. But we've discovered a wealth of plants hardy in the Pacific Northwest, ready to adorn the winter garden. Just think of the winter blooms of *Hamamelis* species, or *Sarcococcoca, Mahonia* and *Viburnum*.

Likewise, there is a hidden treasure of bloom, color, and texture on woody stems waiting to be gathered into summer gardens. These woody plants also provide year 'round structure and interest, and favorite perennials can be used to play off the features of their woody neighbors.

A well-placed selection of shrubs and trees with summer interest will celebrate the colors and textures of summer and then stick around for repeat performances throughout the year. For instance, *Cornus kousa*, cloaked in white blossoms in June, draws dramatic hues of red come fall. With similarly dramatic fall color, *Stewartia monadelpha* bears white flowers in July and shows off striking cinnamon-colored bark in winter. The large, leathery, oak-shaped leaves of *Hydrangea quercifolia* add bold texture and color. The dark green leaves with gray-green felt on the underside go crimson to purple in fall, and *H. quercifolia* 'Snowflake' bears especially large, creamy-white flowers from June to September. Striking leaf color can be found in the deep purple, heart-shaped leaves of *Cercis canadensis* 'Forest Pansy.' Cultivars with variegated leaves provide interest all summer and can be found among many species: *Azara microphylla* 'Variegata,' Weigela praecox 'Variegata,' and *Cornus alternifolia* 'Argentea.'

Summer flower color comes in a rainbow of hues: crimson panicles on Aesculus pavia, the bright yellow of *Hypericum, Ceanothus* 'Autumnal Blue,' the bronze tufts of *Cotinus coggygria*, white *Clethra alnifolia*, purple *Vitex agnus-castus*.

BELOW: *Olearia ilicifolia*, native to New Zealand, is a vigorous shrub with large, gray-green, holly-like leaves and surprising daisy flowers on a shrub that ultimately grows to 6 feet.



ABOVE LEFT: Of the many *Hebe* cultivars, *Hebe* 'White Gem' is a star—a dwarf, compact, long-blooming shrub with flowers attractive to butterflies.

ABOVE RIGHT: One of the colorful species of this Australian genus, *Callistemon linearis* var. *pumila* produces red, bottlebrush flowers on a shrub sized for smaller gardens.

Having a small garden space doesn't eliminate the use of these summer-blooming woody selections. There are many small trees and shrubs with summer bloom, as well as dwarf varieties of larger growing species.

Spend some time this summer discovering the treasure of flowers, color, and scent that abound on woody stems. To get you started, here is a list of shrubs—many of which can be seen at the Arboretum. Selections are based on seasonal interest between June and September. In the Summer 2005 issue of the Bulletin we will provide an equally enticing list of trees.

***Aesculus pavia*—red buckeye**

With upright red flower spikes reminiscent of annual Salvias, this little-used East coast native offers striking early summer flowers held above the leaves. It develops into a 12-foot shrub or small tree. A much smaller version is provided in the cultivar *A. pavia* 'Humilis.' (Arboretum map grid 1-1E, 2-1E)

***Callistemon linearis* var. *pumila*—dwarf, narrow-leafed bottlebrush**

Red flowers on last year's growth grace the arching stems like so many woolly bear caterpillars begging to be stroked. It reaches a height of about 30 inches with a broad spread. Several other species and forms of this Australian species are also available in local nurseries. (Arboretum Graham Visitors Center)

***Calycanthus occidentalis*—California allspice**

A large, deciduous shrub, reaching eight to 12 feet in height, with a maroon flower resembling a small, leathery magnolia blossom. Aromatic blooms stand out beautifully against new growth. Two similar Eastern U.S. species are Carolina allspice, *C. floridus*, and *C. fertilis*. (Arboretum grid 29-3E)

A very new introduction of special interest reaching nurseries this year is Raulston allspice, x *Sinocalycalycanthus raulstonii* 'Hartlage Wine,' named in honor of Richard Hartlage's work with J.C. Raulston creating this intergeneric hybrid between *Calycanthus floridus* and *Sinocalycanthus chinensis*.

***Carpenteria californica*—tree anemone**

Large, white flowers with bright yellow stamens are gaily set against evergreen foliage. A good, drought-tolerant, multi-stemmed selection for sunny spots, averaging 4 to 6 feet tall in the Pacific Northwest. (Arboretum grid 22-3E)

***Clethra alnifolia*—summersweet**

With a name like this, what more needs to be said? Its fragrant, upright, white racemes appear in late summer. This tall woodland shrub is a good companion for rhododendrons. Japanese clethra, *C. barbinervis*, bears drooping racemes and has lovely fall color. (Arboretum grid 15-2E, 16-2E)

Cotoneaster lacteus

Creamy white flower clusters and oval, evergreen leaves line the arching stems of this striking 12-foot shrub. The beautiful red fruits persist into winter. (Arboretum grid 46-1E)

***Eucryphia glutinosa*—hardy eucryphia**

A late summer star with sweet, white camellia-like flowers, this tall, upright, semi-evergreen shrub is ideal for tight spaces. It is best grown as a woodland-edge plant or in a mixed shrub bed. *Eucryphia* x *nymanensis* 'Mount Usher' bears semi-double flowers. (Arboretum grid 7-3E, 8-2E, 8-3E)

Hebe

With a broad selection of summer-blooming species and cultivars (too many to list them all here), there's a Hebe waiting for a spot in your garden. These evergreen New Zealand plants range from prostrate groundcovers (*H. pinguifolia*), to midsize, rounded shrubs

A graceful Northwest native, *Holodiscus discolor* has airy, creamy-white blooms throughout the summer.

(*H. buxifolia*). Flowers come in fine white blankets (*H. decumbens*) and white to colorful Veronica-like spikes (*H. rakaiensis, H. speciosa*). (Arboretum grid 8-4E, 9-4E, Union Bay)

***Holodiscus discolor*—ocean spray**

Our own Northwest native, typically found in association with Douglas fir and madrone, performs well in naturalized gardens. This deciduous shrub has a light leaf texture on upright stems, which are bathed in airy, creamy white, floral clusters throughout the summer. (Arboretum, throughout).

Hydrangea aspera* var. *sargentiana

A velvety, subtle hydrangea with pinkish sterile florets surrounding mauve fertile flowers in mid-summer. A narrow, multi-stemmed shrub for light shade, growing up to eight feet tall. (Arboretum grid 39-3E)

***Hydrangea quercifolia*—oakleaf hydrangea**

This deciduous shrub has bold, textured, leathery leaves with very large, creamy white, flower panicles. By fall, the blooms take on a pink tinge, as the leaves turn crimson. Grown best in light shade, it can range in size from 4 to 8 feet. (Arboretum grid 32-2E)

Hypericum sp.

Several small shrub forms of *Hypericum* produce 2-inch, sunshine-yellow blossoms in mid-summer: *H. frondosum* 'Sunburst,' *H. henryi* ssp. *uraloides, H. forrestii, H. maclarenii*. (Arboretum grid 8-4E, 20-1W, 9-6E, 8-2W)

***Itea virginica 'Henry's Garnet'*—Virginia sweetspire**

Another summer contribution from the Eastern United States, this cultivar has white racemes in early summer, and garnet-red fall color. Spreading by underground stems, it is an easy-to-grow shrub with 3- to 4-foot height. (Arboretum grid 32-1E)

***Olearia sp.*—daisy bush**

It is almost surprising to see these true daisy blossoms attached to these robust shrubs of the Compositae family. *Olearia ilicifolia* and *O. macrodonta* have holly-like leaves, while *O. phlogopappa*, and *O. solándri* are much finer in texture. (Arboretum New Zealand display 8-4E, 9-4E)

***Vitex agnus-castus*—chaste tree**

This plant offers the virtues of drought-tolerance, color and texture to the summer garden. The gray, downy stems host aromatic, narrowly palmate, gray-green leaves and foot-long flower panicles covered in dusty-white buds that become fragrant, light purple flowers. Blooms best in hot, sunny spots and grows to about 10 feet in height. (Arboretum map 05-E, Union Bay) ~

Christina Pfeiffer is a horticultural consultant and former Washington Park Arboretum Horticulturist. She may be reached at 206-526-1362.

A Habitat Garden for Hardy Ferns

By John van den Meerendonk

Photos by Richie Steffen

Have Seattle's last two warm summers made you long for cool, shadier habitats in your garden? If so, the Hardy Fern Foundation's (HFF) design of this year's Arboretum Signature Bed at the Graham Visitors Center should provide considerable inspiration. In designing the bed, the HFF had three goals: First, to create a design that would display ferns in a landscaped setting. Second, to include as many ferns as possible in various habitats. Third, to provide shade for the garden.

Design for Fern Habitats

Taking the last goal first, the Signature Bed design features an arbor that covers the entire space and is intended to blend with the large arbor that covers the adjacent courtyard. It

BACKGROUND: The brilliant burgundy of the new growth of *Woodwardia unigemmata*, native from India to eastern Asia, is uniquely colorful.

INSET LEFT: Wallich's wood fern, *Dryopteris wallichiana*, an erect fern with fronds up to 4 feet long, grows in the mountains of Mexico, South America, Africa, Asia and even Hawaii.

INSET RIGHT: The delicate new growth of *Polystichum setiferum* 'Plumosum Multilobum,' one of the very finely divided forms of Europe's commonly known soft shield fern, gathers early spring light.

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provides shade for the ferns, especially in sunny summer months. A rock-lined, dry stream traverses half the length of the space, terminating in the middle of the bed into a small dry pool and contributing a natural look to the garden. Fern habitat in the garden is realized in three distinct areas. The north end of the bed features the head of the dry stream and represents a sub-alpine area. The center of the bed, with the dry pool, represents a fen or wetland. The south end of the bed is partially raised and represents woodland garden habitat.

Sub-Alpine Habitat

This area is anchored by three small mountain hemlocks, *Tsuga mertensiana*, placed along the edges of the upper dry stream. This common, well-recognized, sub-alpine native

just speaks "I am from the high country." Rich green, fragrant, narrow in form and often contorted from heavy snows and high winds, especially in the higher reaches of its domain, it is always a beauty to behold. Evergreen huckleberry, *Vaccinium ovatum*, although more common in our lowland forests, provides a deep green foil for weathered granite stones.

Among the ferns in this area are the native, maidenhair spleenwort, *Asplenium trichomanes*, found in shaded rock crevices in the Cascades and elsewhere in mountainous regions of North America, Europe and Asia. This diminutive beauty has very narrow fronds and deeply cut segments with a black rachis. The wavy cloak fern, *Cheilanthes (Astrolepis) sinuata*, is narrowly upright with whitish scales on the stipe and on the blade undersides, with some scales also on the blade surface, giving this fern a grayish blue-green cast. *Cheilanthes* species are well adapted to dry, sunnier habitats and deserve to be more widely cultivated in sunny rock gardens. This large genus of about 200 species occurs primarily in Mexico and the southwestern United States.

RICHIE STEFFEN

Becky Reimer, Hardy Fern Foundation board member, plants a fern in the Arboretum's Signature Bed.

Another diminutive fern in this section of the garden is a dwarf, crested form of the soft shield fern, *Polystichum setiferum* 'Congestum Cristatum.' Although the species is a common lowland fern native to Europe, this dwarf form

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has dense, overlapping pinnae and a crested frond tip with tan scales covering the stipe and rachis. It requires a slightly moist soil.

Blechnum penne-marina, commonly known as the dwarf deer fern, because of its close kinship with our native deer fern, *B. spicant*, is native to alpine grasslands in New Zealand, Australia and Chile. The fronds are 4 to 8 inches long, and its habit is creeping—making it an excellent groundcover, and it can take a fair amount of sun.

Further down the dry stream there is situated a big bold Wallich's fern, *Dryopteris wallichiana*, with leathery, dark green, lustrous, lance shaped fronds that can reach to 4 feet. Also here you will find the lovely semi-evergreen Himalayan maidenhair, *Adiantum venustum*, which can make a beautifully textured groundcover. *Asplenium scolopendrium*, the hart's tongue fern, has a simple, leathery blade with a washboard arrangement of sori on its underside.

Wetland Habitat

Ferns that do well in moist places include those in the genera *Osmunda, Matteuccia,* and *Woodwardia*, many in the genus *Athyrium* and some in the genus *Dryopteris.* Members of the dimorphic genus *Osmunda*, as a group, are called flowering ferns due to the highly ornamental nature of their fertile fronds. Masses of sporangia on the undersides of leafless fronds or pinnae look like large clusters of tiny grapes until the green spores are shed, the remaining sporangia taking on a nice tan color. The fertile fronds remain erect into the winter long after the deciduous fronds have died down for the season. This majestic group is all quite large, especially if grown in wet situations. In this area of the Signature Bed we have *O. regalis*, the royal fern. This wide-ranging species can grow fronds to 6 feet or more when content.

Osmunda regalis 'Purpurascens' is an ornamental form in which the stipe and rachis

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are purplish rather than green. *Osmunda cinnamonea*, the cinnamon fern, is named for its bright cinnamon-colored, fertile fronds occurring after its green spores are shed. *Matteucia struthiopteris*, the ostrich or shuttlecock fern, is unsurpassed for its perfect vase shape. The plume-like, deciduous vegetative fronds glow a soft green when they emerge in the early spring. But beware! This vigorous fern spreads readily from underground stolons, sending up two or three new plants each year. If left unchecked, this fern can become invasive, soon overwhelming its neighbors.

There are also two *Woodwardia* ferns in the wetland habitat area. The members of this genus are commonly called chain ferns, referring to the characteristic elongate sori with indusia arranged in a broken line along the pinnule mid-veins like the links of a chain. The giant chain fern, *W. fimbriata*, is truly dramatic, with large (up to 10 feet), lance-shaped fronds, the lobes of the pinnae long and sharply pointed with finely toothed margins. This absolutely gorgeous fern is found in only in a few locales in Western Washington—a few populations along the lower Hood Canal and one population I discovered by chance on the west side of Bainbridge Island. It becomes more common in northern California where it grows robustly at Strybing Arboretum and Botanical Gardens in San Francisco. A personal favorite is *W. unigemmata*. This eastern Asian native has beautiful, lustrous, lance-shaped fronds. The young emerging fronds display a burgundy, almost blood-red color that can take your breath away.

Woodland Habitat

The southern end of the Signature Bed is anchored by a nice-sized, multi-stemmed specimen of *Acer circinatum*, native vine maple, with arching branches providing woodland structure and cover in this limited space. Also planted for woodland effect are the shrubs *Mahonia* x *media* 'Charity,' *Rhododendron* 'Yaku Princess,' and *Vaccinium*

ovatum, evergreen huckleberry. Other woodland companions are species and cultivars of *Cyclamen, Dicentra, Epimedium, Hepatica, Heuchera, Oxalis* and *Vancouveria*. Adding structure and interest to this habitat are fern-draped logs and a stump.

One of the logs is festooned with our native *Polypodium glycyrrhiza*, the licorice fern. Of creeping habit, this fern is most often seen growing epiphytically on shaded trunks and branches of the big leaf maple. It is mostly summer dormant, but with the onset of the fall rains becomes green again. Summer water keeps it green year 'round. *P. glycyrrhiza* 'Longicaudatum' is planted nearby and exhibits a greatly elongated apex of the frond, like a narrow pointed tail. The common polypody, *P. vulgare*, drapes the other log in this area. It is somewhat similar to licorice fern, but produces new fronds in early summer rather than in mid-fall. Also in the garden is our Northwest coast native, *P. scouleri*, the leathery polypody. The pinnae are a very dark green color, leathery in texture and broader in width when compared to other mentioned species. In the wild it is often see growing out of well-rotted nurse logs and rarely strays more than a few miles inward from the coast.

Two species of holly fern are present in this habitat planting: *Cyrtomium fortunei*, or Fortune's holly fern, and *C. macrophyllum*, the large-leaved holly fern. The genus gets its common name from its beautiful, leathery, holly-like pinnae. There are about 15 species in this genus, almost all of them native to East Asia. They thrive in shaded, rich soil with ample drainage, as do the shield ferns of the genus *Polystichum*, numbering nearly 200 species, mostly from temperate regions. Most species of *Polystichum* are evergreen with bristly stipes and rachis, often with lustrous, deep green fronds, a welcome sight in the winter garden. The most common native fern in our immediate locale is *P. munitum*, the western sword fern. In deeply shaded sites its fronds can reach 5 feet in length. I can recall numerous times walking beneath the heavily shaded canopy of old growth forests, predominantly western hemlock and western red cedar, immersed in a thick blanket of ascending *P. munitum* fronds up to my shoulders. But alas, for its commonness, we take it for granted, little appreciating the contributions it makes in the forests and landscapes of the Pacific Northwest.

There are many more ferns, 60 species and varieties, for you to discover in the Signature Bed, including a few select species of the genera *Athyrium* and *Dryopteris*, both of which number several hundred species in the wild. Brochures for the Hardy Fern Foundation Habitat Garden, complete with map and plant list, are available in the Graham Visitors Center.

Role of Hardy Fern Foundation

The Hardy Fern Foundation was founded in 1989 to establish comprehensive collections of the world's hardy ferns for display, testing, evaluation, public education and introduction to the gardening and horticultural community. The HFF is now affiliated with 20 botanical gardens and arboreta located across North America, where satellite fern gardens for testing and evaluation and fern display gardens for education are established. The primary fern display and test garden is located at, and in conjunction with, the Rhododendron Species Botanical Garden, in Federal Way, Washington. Many thanks to the board and members of HFF for the time, ferns and dedication that created the Fern Habitat Garden. ❧

John van den Meerendonk owns Botanica, a landscape design, consulting, and installation company, located on Bainbridge Island. He is presently serving as president of HFF. Richie Steffen is Coordinator of Horticulture for the Elisabeth C. Miller Botanical Garden in Seattle, serves on the HFF board and is its president-elect. For further information about the HFF, visit www.hardyferns.org.

EDWARD BERNARD DUNN

A GARDENER FROM SEATTLE

By Tanya DeMarsh-Dodson

One hundred years ago, Edward Bernard Dunn was born in Seattle, Washington. This year, the Dunn Gardens, the public garden he endowed, is celebrating this remarkable man and his many contributions to horticulture and to the Pacific Northwest.

Ed Dunn, an avid gardener and enthusiastic plantsman, is best remembered for the wonderful woodland garden he created in Seattle. As it evolved, his style of gardening was informed by a variety of factors: his experiences growing up in the Pacific Northwest; European and American traditions of landscape design; his fellow Northwest gardeners; and his associations with people in horticulture in other regions of this country and abroad.

Becoming a Northwest Gardener

Dunn was raised at the family's home on Union Street and their "country" place in north Seattle. James F. Dawson of the Olmsted Brothers firm in Massachusetts designed the country place garden for the family, so Dunn was exposed to fine landscape design at an early age. During his childhood, Dunn developed a love of the Pacific Northwest—its flora and fauna, picnicking on the Tacoma prairies, and hiking, fishing and camping in the Lake Cushman area of the Olympic Mountains and in The Dalles area of the Columbia Gorge. Dunn recalls September grouse hunting after school in the quarter mile between their country place and the shores of Puget Sound. Plant hunting and monitoring became fused with hunting grouse in time, and Dunn used his almost annual fall trips to Eastern Washington, Oregon or British Columbia to monitor populations of native plants. His journal indicates that throughout his life he continued to observe and absorb personal lessons about plant habitats and associations. His understanding and appreciation of the ornamental value of the flora native to the Pacific Northwest continued to evolve and influence his gardening.

Dunn used native plants extensively and developed particular interest in two native spring ephemerals, *Trillium* and *Erythronium.* His correspondence and journals reveal that he collected both plant species, propagated and shared them, particularly *Erythronium*, with people living around the world. In 1967 he published an article in Horticulture on western *Erythronium.* His motivation to publish was evident in his writing; he wanted to encourage the use of such fine garden "doers" in many more gardens. His own collection included *Erythronium revolutum, E. oregonum, E. montanum, E. citrinum, E. grandiflorum, E. americanum, E. hendersonii, E. tuolumnense* and others. Today visitors can see both *E. revolutum* and *E. oreganum* growing in the woodland areas of the garden. The variety of *Trillium* represented in the garden is also notable, including *Trillium ovatum, T. grandiflorum, T. albidum, T. sessile, T. erectum, T. cuneatum, T. kurabayashii, T. chloropetalum, T. luteum, T. rivale, T. sulcatum* and others.

Dunn built his garden on the portion of family's country place that he inherited from his father. He created a home out of a garage and settled there in 1946. He then gardened for the rest of his life in the understory of the

COURTESY E.B. DUNN HISTORIC GARDEN TRUST

mixed coniferous and hardwood woodland defined initially by the Olmsted design. His garden included a large woodland area, a beautiful perennial border adjacent to his home and a kitchen garden. His journals from the early 1950s indicate that he was already growing one of the signature plants of his mixed perennial border, *Romneya coulteri* (fried egg plant). His notes also mention delphinium and Martagon lilies, phlox and asters. Some of these plants are familiar to those who have visited this border recently.

Rhododendrons in the Woodland

Including rhododendrons in his perennial and woodland gardens came as a result of the eye he developed for design from the plantings in his father's garden, from his study of Northwest flora, and from the many gardens he visited. As he indicated in an article he wrote during his tenure as President of the American Rhododendron Society, Dunn felt

BACKGROUND: Two of Ed Dunn's favorites, *Erythronium oreganum* and *Trillium ovatum*, pictured in his garden in 1965.

INSET: Dunn on one of his beloved hiking excursions—taken at Lake Berdeen, British Columbia, Labor Day weekend, 1950.

rhododendrons were an ideal plant for informal woodland gardens. Almost describing his own garden, he suggested good planting design might specify the placement of dwarf rhododendrons, pastel-blooming rhodies of the triflorum series, and large-leaved species and hybrid rhododendrons in the dappled shade of large trees where they might add touches of color along paths curving through swaths of native groundcovers.

A family memoir about the early life of Edward Dunn, "1121 Union" is to be published by the E.B. Dunn Garden Trust on July 31, 2004. For further information, call the garden at the number below.

As Dunn developed his garden, he became more and more active in horticultural organizations and developed acquaintances with nurserymen in the Seattle area. Many of them, such as Halfdan Lem, who lived within two miles of Dunn, were actively involved in hybridizing rhododendrons. Dunn joined the Seattle Rhododendron Society, founded in 1946, associated with the group of nurserymen-rhododendron hybridizers who were members of the "RumDum Club," and became president of the Society in the 1950s.

He also became active in the Arboretum Foundation, perhaps in part through these nurserymen's ties with the then-Director of the Arboretum, Brian Mulligan. While president of the Arboretum Foundation from 1957 to 1960, Dunn and Mulligan guided the creation of the Japanese Garden, which opened in 1960. In 1958 he also received the honor of having a rhododendron named for him. *Rhododendron* 'Edward Dunn,' with a particularly beautiful orange-yellow flower, was hybridized by Endre Ostbo. Like many others in the Rhododendron Society, Dunn showed his plants in annual rhododendron exhibits and began hybridizing himself. In 1965 he was elected president of the American Rhododendron Society, a position he held until 1969.

During this presidency, Dunn traveled widely in North America, Europe, and elsewhere, representing the Society and the Pacific Northwest in horticultural circles on several continents. The American Rhododendron Society awarded him its highest honor, a gold medal, in 1971, in part for his contributions to the revitalization of the organization. Well aware of the need for a collection of true forms of species rhododendrons here on the West Coast, Dunn was active in the group that founded the Rhododendron Species Foundation and instrumental in the eventual location of the garden in Federal Way. Working together once again, he and Mulligan were most responsible for the Seattle Rhododendron Society's acquiring the Meerkerk Rhododendron Gardens on Whidbey Island in 1982.

Woodland Habitat & Northwest Landscape

Throughout his later life, Dunn continued to garden and in 1987 worked with designer Lynne Sonneman to build a pond in his woodland garden. He had long been interested in attracting wildlife to his garden; the addition of a water feature in the vicinity of large trees increased the appeal of the habitat for birds and other creatures. During this time he also employed Charles Price and Glenn Withey to help him renovate his mixed perennial border. The evolved organization of the garden's spaces and the complexity of plantings designed for

Docent-led tours of the Dunn Gardens are currently offered Thursday at 1:00 p.m.; Friday, 10:00 a.m. & 1:00 p.m.; and Saturday, 10:00 a.m., April-July and September-October. Tours are limited to 12 persons. Admission is $10.00, $7.00 for seniors. For more information and to schedule a visit, phone 206-362-0933 or visit: www.dunngardens.org.

four-season interest reflect the sophistication of a wise gardener. In addition, his garden and other notable woodland gardens created in Puget Sound basin in the first half of the 20th century—the Bloedel Reserve on Bainbridge Island, the Elisabeth C. Miller Botanical Garden in the Highlands, the Chase Garden in Orting, and the Lakewold Gardens in Lakewood—give us insight into the evolution of Pacific Northwest styles of garden design.

In the late 1980s, aware of the potential for the dismemberment of his creation, Ed Dunn arranged for an alternate outcome. He facilitated the creation of his woodland as a public garden to be protected, maintained, and shared. Although Dunn probably would never have described himself as an environmentalist, in articles and his letters-to-the-editor, written over a period of many years to The Seattle Times and the Post-Intelligencer, he expressed his awareness of the impact our contemporary ways have had on all forms of life in the Pacific Northwest. He was concerned about the pollution of our atmosphere as well as our waterways and wetlands. He was acutely aware of the effect reliance on highways and private automobiles, instead of public mass transportation, has had on the landscape of Puget Sound basin. Dunn was conscious of the loss of woodland and old growth forest in the lives of Puget Sound dwellers. In his wisdom, he arranged for the preservation of his woodland. You are invited to visit his garden and celebrate Edward Dunn! ~

Tanya Demarsh-Dodson has volunteered at the Dunn Gardens since 1993. She serves on the board and is chair of the garden conservation committee. She has been a member of the Great Plant Picks committee since 2000. She is also working with Art Kruckeberg as a member of the Kruckeberg Botanic Garden Foundation to assist in the transformation of the Kruckeberg Botanic Garden into a foundation-run public garden.

REFERENCE AND INSPIRATION:

Information & Art in Three Encyclopedias

By Carol H. Brittnacher

In this age of gorgeous gardening books, even encyclopedias can be alluring. Here are three from which gardeners new and experienced can gather plentiful information. All were published recently; "The American Horticultural Society's Encyclopedia of Gardening" is a complete revision of the 1993 issue of the same title.

A Thousand Trees

"The Illustrated Encyclopedia of Trees" by David More and John White was inspired by artist David More's passion to record—actually, to paint—the details of every tree species, subspecies, variety, form, cultivar and hybrid found in the United Kingdom and Ireland. Most of the more than 1,000 trees described in the book are not native to this region but were brought in great number and variety to the British Isles and Ireland from other temperate parts of the world. That said, this encyclopedic work contains information on a great many trees that grow in the United States and Canada as well. For example, *Chamaecyparis nootkatensis*, or Nootka cypress, and two of its cultivars are illustrated in detail in the book. The text tells us that it was Scotsman Archibald Menzies whose discovery of this tree in the early 1790s led to its eventual introduction, first in Germany and later Britain in the mid 1800s.

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Retired dendrologist John White wrote the more or less concise accompanying descriptions and natural history notes for each tree. In the book's introduction, White discusses the variety of forms that plant names are given: common names; genus and species names in botanical Latin; "subspecies," and "forma;" cultivar names in single quotes,

In "Flora: A Gardener's Encyclopedia" *Hydrangea quercifolia* 'Snow Queen' is described as having "larger sterile florets than the species" and "exceptional autumn foliage colors. Zones 5-10."

such as 'Fastigiata,' as well as hybrid names such as *Prunus* x *yedoensis*. White also offers brief but helpful information for gardening with trees, including important larger ecological considerations. There are a few pages of historical background on plant collectors, those world travelers whose exploits brought many of our favorite trees home to us. White also provides introductory notes to help the reader fully understand the trees' descriptions, and he offers lists of trees for particular sites or for special needs, such as trees for very wet ground or for ornamental fruit.

The trees are organized by common family name groups—for example, pines, poplars and willows—and within those families they are organized in smaller groups where applicable. For example, under "cypresses" is the subsection "Lawson cypresses." Paintings both of branchlets and of the full-grown tree for each cypress cultivar, in this case, provide helpful images of the habit of each tree to aid in selection for size as well as for aesthetics. For some trees there are paintings of the cones, pollen cones, seeds, seedlings, leaves and bark. Fall foliage and winter twigs—for deciduous trees—are illustrated for many species. This book is a tree-lover's delight, and could well be dubbed the northern hemisphere's pictorial tree bible.

A Valuable Gardening Tool

"The American Horticultural Society Encyclopedia of Gardening" by Christopher Brickell, editor-in-chief, would make a wonderful gift for the new homeowner and aspiring—or even experienced—gardener. It looks like a book intended both for coffee table ready-reference and inspiration. The newly revised encyclopedia is divided into two large categories. Part one discusses issues related to "creating the garden," and describes many garden styles, garden features and planting principles. Part two considers "maintaining the garden," and its many atten-

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dant subjects. Discussed are recommendations for tools and other gardening equipment items; miscellaneous garden structures, such as fences, paths, walls, and raised beds; climate and its regional constraints; soil basics and fertilizer information; various methods of propagation; and "plant problems," such as pests, diseases and physiological disorders, organized by affected plant part—leaf, stem, flower, fruit, root or tuber. Following the text is a glossary, a hardiness and heat index for many garden plants, and an index. Consider this book a valuable "indoor" gardening tool.

Indispensable & Mesmerizing

The last new and indispensable encyclopedia of mention is actually two-plus volumes: "Flora: A Gardener's Encyclopedia," Sean Hogan, Chief Consultant. This 1,584-page bicep-builder, with accompanying CD, otherwise might have been named "Every Gardener's Encyclopedia." Its two volumes are so full of advice and information that they more than inspire—they mesmerize the intrepid plant lover and will fascinate the new gardener. The enclosed CD is an interactive tool. One of its offerings is to assist with plant selection. When provided selection criteria from several categories, such as fall color and mature height, from its database of species, it will provide a list of appropriate plants. The CD is a great bonus to an already valuable book.

Whereas the previously described "AHS Encyclopedia of Gardening" covered all sorts of practical aspects of gardening, "Flora" is devoted to describing individual plants—more than 20,000 of them, listed A to Z, from all over the world. Color photographs, along with botanical and common plant names are provided, starting with a genus overview. Light preferences for individual species are provided, as are USDA hardiness zones. Height and spread dimensions are also given.

A typical plant entry describes first the genus (*e.g., Kolkwitzia*) and lists its family, both common and Latin name (*e.g.*, Caprifoliaceae, or Woodbine Family); the country and region to which the plant is native; and finally cultivation and propagation notes. Following this, the species are described. *Kolkwitzia amabilis* is written up as follows: "BEAUTY BUSH: Full sun; Full hardy; Spread to 12 ft. (3.5 m); Height to 12 ft. (3.5 m). Bushy deciduous shrub; long, upright or arching shoots. Leaves opposite, broadly egg-shaped, tapered, with rounded tip. Corymbs of bell-shaped flowers, white to pink, yellow-marked throats, late spring—early summer. 'Pink Cloud,' *Flora* award winner, slightly larger, deeper pink flowers. Zones 4-9."

This encyclopedia will whet the appetites of the new gardener as well as the known plant lover. It is a highly recommended gardening investment. ~

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Oxford Botanic Garden

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An early spring view from the water garden looking toward Magdalen Tower.

Darwin's time. Techniques in plant conservation are becoming much more sophisticated and successful. This means that plant conservation is now an upbeat, vibrant discipline that attracts many of our undergraduates. The 2002 Global Strategy for Plant Conservation with its targets for 2010 has given fresh impetus to everyone in botanic gardens. Here is a challenge to us all. The World Congress of Botanic Gardens in Barcelona in April 2004 was an important part of the development of the Global Strategy.

It is a universal horticultural truth that a garden is a process and not a product. Only gardens that develop and evolve will survive. It is a universal biological truth that biology is constantly changing. Botanic gardens and arboreta must also change with the world around them. The collection of plants contained within the University of Oxford Botanic Garden has changed constantly during the past three centuries. The Garden has been extended twice and now includes an 80-acre arboretum with areas of semi-natural woodland and grassland. However, it has remained true to its mission *to promote learning and glorify the works of God.* ~

Timothy Walker has served as the University of Oxford's Botanic Garden mugwump (Director) for 16 years. To plan your trip to see Britain's oldest botanic garden, consult the garden's Web site: www.botanic-garden.ox.ac.uk.

Photo by Al Dodson

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